

**REMARKS/ARGUMENTS**

Claims 1-18 are currently pending.

The Office Action rejected claims 1, 2, 5-12, 17 and 18 under 35 U.S.C § 102 as anticipated by EP 225,036 (“Szekely”), claims 3, 4 and 13-16 under 35 U.S.C § 103 as obvious over Szekely, and claims 1-18 under 35 U.S.C § 103 as obvious over EP 310,100 (“Hansen”). In view of the following comments, Applicants respectfully request reconsideration and withdrawal of these rejections.

The present invention relates to unique polyolefin fibers having unique sizing agents. More specifically, the sizing agents of the present invention comprise at least a product based on fatty-acid polyethylene glycol ester and phosphoric acid ester compounds, natural-oil-based, a product based on a fatty-acid-derived polyethylene glycol ester, and/or a product based on non-ionic surfactant and esterquats. The required, specified sizing agents assist fiberization, assist wetting by the composition of the hydraulic-setting substance to which they have been added, and promotes adhesion to the hydraulic-setting substance. These novel fibers have beneficial properties owing at least in part to these functionalities, particularly for use in reinforcing products based on fibers and a hydraulic-setting substance. The applied art neither teaches nor suggests such unique fibers.

Applicants draw attention to the examples in the present application. In comparative examples 1 and 3, CRACKSTOP commercial product was compared to the invention fibers. CRACKSTOP is a polyolefin (polypropylene) which is coated with a surface agent (stabilizer). (See, Tab A, Section 2). The summary information in Tables 1 and 2 indicate that the invention fibers possess improved properties as compared to CRACKSTOP. Thus, as an initial observation, not all coated polyolefin fibers are the same. Some are better than

others. This is the significance of the present invention: providing improved polyolefin fibers which are neither taught nor suggested by the applied art.

With specific reference to the applied art, Szekely and Hansen disclose fibers containing sizing agents limited to specified antistatic agents. Neither of these references teaches or suggested the required sizing agents. This failure of disclosure is significant given the associated functionality of the claimed fibers, namely assisting in fiberization, assisting in wetting by the composition of the hydraulic-setting substance to which they have been added, and promoting adhesion to the hydraulic-setting substance. The claimed sizing agents yield fibers having such functionality and, thus, yield fibers having improved properties. In stark contrast, sizing agents containing only the specified antistatic agents in the applied art would yield inferior products having inferior properties.

Szekely merely discloses “polyethylene glycol/s/ of low or medium molecular weight.” (Page 4, lines 9-10). These are PEG compounds *per se*, not the required PEG modified compounds of the present invention. Hansen does not provide any specific guidance as to which sizing agents to use which would lead one of ordinary skill in the art to the claimed agents. Rather, Hansen merely discloses that any surface modification will suit his purposes. (See, page 4, line 36-39). The Office Action does not -- and cannot -- point to any specific disclosure of the required sizing agents in either of the applied European applications.

This is particularly true for claims 13, 14, 17 and 18: neither Szekely nor Hansen discloses fibers containing sizing agents comprising fatty-acid-derived polyethylene glycol ester, and their fibers yield inferior products.

This is also particularly true for claims 13-16: neither Szekely nor Hansen discloses fibers containing sizing agents comprising phosphoric acid ester compounds, natural-oil-based, and/or esterquats, and their fibers yield inferior products.

These failures of disclosure are particularly significant given the examples of the present application which demonstrate that not all coated polyolefin fibers are equal: some are significantly better than others. The present invention informs one of ordinary skill in the art of these improved fibers. The disclosures of the applied art, on the other hand, would not teach or suggest to one of ordinary skill in the art the required sizing agents or the improved properties resulting from the use of such agents. Accordingly, none of the applied art teaches or suggests the claimed invention.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C §§ 102 and 103.

Applicants believe that the present application is in condition for allowance. Prompt and favorable consideration is earnestly solicited.

Respectfully submitted,

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## **TAB A**

# Material safety data sheet

Date : October ,2007

**PRODUCT NAME :** Sika® Crackstop

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## 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

Product name

Sika® Crackstop

Manufacturer/supplier information

Sika (Thailand) Limited

700/37 Moo 5 Bangpakong Industrial Park II,  
km. 57 Bangna-Trad Rd., Tambol Klongtamhru,  
Muang District, Chonburi 20000  
Tel./Fax : 0-3821-4270-85 / 0-3821-4286

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## 2. COMPOSITION / INFORMATION ON INGREDIENTS

Main components

Propene homopolymer : min 98 %

Chemical formula :  $(C_3H_6)_n$

Substances presenting a health hazard

None to our knowledge

Chemical family

Olefin polymer

Additives

Polypropylene antioxidants and stabilizers : 2.0 % max

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## 3. HAZARDS IDENTIFICATION

Main hazards

None to our knowledge.

Symptoms related to Inhalation

If heated to more than 235°C, the product may form vapors or fumes that may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath.

Physico-chemical hazards

Combustible if exposed to flames.

Ingestion no observable toxic effect.

Environmental impact

The product should not be harmful to aquatic life.



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**4. FIRST-AID MEASURES**

Route of exposure Inhalation

Exposure to spray fumes and vapors produced by heated or burned polypropylene in the case of severe exposure to spray fumes or vapors, move the affected person into fresh air and get medical advice if the symptoms continue.

Skin contact

Exposures to splashing of hot product treat the affected part with cold water (by spraying or immersion). No attempt should be made to detach molten product adhering to the skin or to remove clothing attached with molten material, usually the layer detaches itself after a few days.

Eye contact

In Case of a severe burn, seek medical advice immediately after exposures to splashing of hot product treat the eyes with cold water. Seek immediately special attention at hospital or medical centre. In case of irritation wash with copious volumes of water, until the irritation disappears.

Ingestion

Ingestion during handling is not likely. In case of ingestion of small quantities, no important effect will be observed. In the case of ingestion of larger amounts this may result in abdominal pain and diarrhea.

**5. FIRE-FIGHTING MEASURES**

Technical measures

Stop the fire spreading. Call the fire brigade immediately. Evacuate nonessential personnel. Protective clothing, goggles and self-contained breathing equipment should be made available for firemen.

Extinguishing media Suitable

For minor fires: carbon dioxide or powder.

For more extensive fires: foam, water spray (mist) to cool the surfaces exposed to the fire.

Not to be used

Do not use water jets (stick jets) in the early stages of extinguishing fire since they could help to spread the flames.

Combustion products

Complete combustion, with an excess of oxygen forms: carbon dioxide and water vapor partial combustion, forms also: carbon monoxide, soot and cracked products: aldehydes, ketones, hydrocarbons and volatile fatty acids.

**6. ACCIDENTAL RELEASE MEASURES**

Fibres spilled on the floor, should be recovered by sweeping or suction. Put in containers to facilitate its disposal which should be in accordance with local or national regulations.



**7. HANDLING AND STORAGE****Handling and Storage**

Do not store near highly flammable materials. Store in a dry area to avoid degradation of the boxes and bags. The product is stable under normal operating conditions.

**Conditions to avoid**

Avoid proximity or contact with flames or sparks. Do not heat to temperatures exceeding 300 °C.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

N/A

**Respiratory effects of fibre**

N/A

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	:	Long monofilament or fibrillated fibre strands
Physical state at 20 °C	:	Solid
Color	:	Translucent or white opaque
Odor	:	Odorless
Change in physical state	:	At 1013 hPa
Melting range	:	160 – 165 °C
Flash point (ASTM D 1929)	:	350 °C
Auto-ignition temperature	:	> 380 °C
Lower Explosion limits	:	0.020 kg/m <sup>3</sup> (for polymer dust < 63 pm)
Density, mass at 20°C	:	0.905 kg/L
Solubility in water (%weight)	:	Insoluble
Viscosity	:	non-applicable

**10. STABILITY AND REACTIVITY****Stability**

Stable under normal operating conditions of storage.

**Conditions to avoid**

Avoid contact with strong oxidizing materials and fluorine also avoid proximity or contact with flames or sparks and do not heat to temperatures exceeding 300° C.

**11. TOXICOLOGICAL INFORMATION****Acute toxicity Symptoms related to Inhalation**

Low risk for temperatures below 40°C. If heated to more than 235°C, the product may form vapors or fumes that may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath.



**11. TOXICOLOGICAL INFORMATION (Continued)****Skin contact**

No risk for temperatures below 40°C.in contact with hot material may cause severe thermal burns.

**Eye contact**

Splashing of molten droplets causes ocular tissue injury.

**Ingestion**

Minimal toxicity.

**Carcinogenicity (mg/kg) IARC (International Agency on Research on Cancer)**

Category 3, the agent is not classifiable as to its carcinogenicity to humans.

**Mutagenicity**

This product has been found to be non-mutagenic or non-genotoxic in the following invitro assays: mouse lymphoma assays, Chinese hamster ovary cell chromosome aberration test, and unscheduled DNA synthesis in rat hepatocytes.

**Other**

Polyolefins are biologically inert.

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**12. ECOLOGICAL INFORMATION****Information on ecological effects**

Avoid losses to the environment whenever possible.

**Mobility Air**

There is a slow loss by evaporation.

**Soil**

Because of its physicochemical properties, the product generally has low soil mobility.

**Water**

Because of its low solubility the product should not be dangerous for aquatic life.

**Persistence and degradability**

Persistent in the environment.

**Biodegradation**

This substance is slowly biodegradable.

**Accumulative potential**

Potential bioaccumulation of the product in environment is very low.

**Bio Ecotoxicity**

Because of its low solubility, the product should not be dangerous for aquatic life.

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**13. DISPOSAL CONSIDERATIONS**

Recommendations

According to local regulations. Do not dispose of by means of sinks, drains or into the immediate environment. It may be used as fuel in suitably designed installations.

**14. TRANSPORT INFORMATION**

No restriction on transport by road, waters, rail or flight

**15. REGULATORY INFORMATION**

Not classified according to EEC directives 67/548/EEC (dangerous substances) and 1999/45/EC (dangerous preparations).

**16. OTHER INFORMATION**

No other information.

Disclaimer

The data in this Material Safety Data Sheet relates only to the specific material herein and does not relate to use in combination with any other material or in any process. The information set forth herein is based on technical data that Sika believes to be reliable as of the date hereof. Since conditions of use are outside our control, we make no warranties, express or implied and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

